

**SENECIO PSILOCARPUS (ASTERACEAE), A NEW SPECIES OF
ERECHTHITOID SENECIO FROM WESTERN VICTORIA AND
SOUTH-EASTERN SOUTH AUSTRALIA**

R. O. BELCHER¹ & D. E. ALBRECHT²

ABSTRACT

Belcher, R.O. & Albrecht, D.E. *Senecio psilocarpus* (Asteraceae), a new species of erechthitoid *Senecio* from western Victoria and south-eastern South Australia. *Muelleria* 8(2): 113–117 (1994). — A new erechthitoid species, *Senecio psilocarpus*, from western Victoria and south-eastern South Australia is described and illustrated with notes on distribution, conservation status, habitat and relationship to *S. squarrosus* A. Rich.

TAXONOMY

Senecio psilocarpus Belcher & Albr. *sp. nov.*

Senecio squarrosus A. Rich. similis. A *Senecio squarrosus* foliis utrinque glabratis vel sparse hispidulis ad marginem nec subter arachnoideis nec insuper breviter hispidulis, bracteolis calycularum dorsalibus glabratis non arachnoideis, cypselis glabris rubellis nitidis non piliferis nigris differt.

HOLOTYPE: Victoria — SW edge of bushland reserve W of Mumbannar along Princes Highway, 37°54'12"S, 141°07'32"E, 13 Mar. 1992, D. Frood 1/92 (MEL 2012639).

Perennial almost glabrous herbs with remnants of multiple erect stems from successive years, mostly unbranched below inflorescences, to 80 cm tall, often clonal in habit from laterally spreading rhizomes and rooting stem bases. *Leaves* alternate, simple, glabrous or occasionally sparsely hispid along margin, oblanceolate or the uppermost sometimes lanceolate, to 12 cm long and 13 mm wide, reducing in length and width towards inflorescence, acute to briefly acuminate, remotely dentate or denticulate; lower leaves subpetiolate; mid-cauline and upper leaves semiamplexicaul, auriculate, auricles lobed to rather coarsely toothed. *Inflorescence* suberect, with 2–20(–34) capitula, initial internodes of the lowest branches unusually long, to 20 cm or more. *Bracts* of the inflorescence alternate, long linear-lanceolate, auriculate, auricles coarsely multi-toothed; peduncles (0.4–) 1–5 cm long, only slightly divergent; peduncular bracteoles few (1–3), usually inserted above the mid-point of the peduncle; calycular bracteoles 6–10, all within the distal 2 mm of the peduncle and mostly not on the receptacle until the apex of the peduncle greatly dilates at post-fructescence, narrowly linear-lanceolate, to 3 mm long and 0.5 mm broad, appressed or the apices free, backs glabrous, margins ciliate. *Capitula* cylindrical; involucre of 12–16(–21) narrowly triangular flat phyllaries, (4.5–)5–6.5(–7.5) mm long with apices more or less recurved as in *S. squarrosus*. *Marginal and submarginal pistillate florets* c. 27–40, without staminodes, very slenderly filiform, 5–6(–6.8) mm long, 0.2 mm in diameter above short slightly swollen incrassate base, apex scarcely dilated, teeth (3–)4, 0.1–0.35 (–0.4) mm long and 0.1–0.2 mm broad, tips scarcely thickened. *Disk florets* perfect, only slightly larger, to 6(–7) mm long and 0.2–0.3 mm in diameter, apices slightly dilated, scarcely infundibuliform, teeth 0.25–0.3 mm long, 0.15–0.2 mm broad; outer (submarginal) disk florets c. 7–18, 3–4-fid

¹ Emeritus Professor, Dept. Biology, Eastern Michigan University, Ypsilanti, MI 48187, U.S.A.

² National Herbarium of Victoria, Royal Botanic Gardens, Birdwood Avenue, South Yarra, Victoria, Australia 3141

Present address: Conservation Commission of Northern Territory, P.O. Box 1046, Northern Territory, Australia 0871

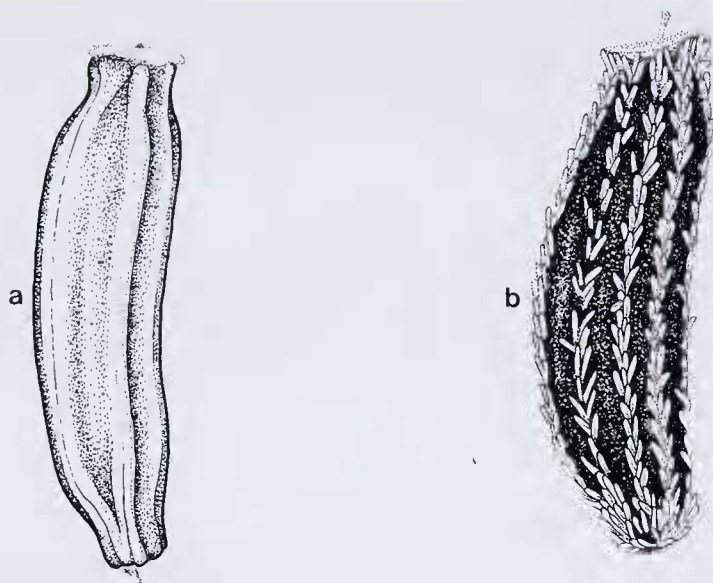


Fig. 1. Comparison of cypselas of *Senecio psilocarpus* and *S. squarrosus*. a — *S. psilocarpus* $\times 30$, from Holotype. b — *S. squarrosus* $\times 30$, from A.C. Beaglehole 62419 (MEL 616098).

with 4 adnate stamens, rarely with 4 or fewer free stamens; inner disk florets *c.* 5–11, 4–5-fid with 4–5 adnate stamens; all filaments balusteriform. Cypselas 1.8–2.5 mm long, 0.5–0.6 mm diameter, cylindrical, often curved, both base and apex slightly constricted, entirely glabrous, shiny brown to reddish-brown (*cf.* Fig. 1); pappus hairs slender, apical teeth two and divergent, rarely retrorse. (Fig. 1)

FLOWERING PERIOD

November to March.

FRUITING PERIOD

January to April.

ETYMOLOGY

The specific epithet is derived from the Greek *psilo-*, bald, and *-carpus*, fruit, descriptive of the characteristic glabrous cypselas. Although this character state is not unique in the genus it is important for distinguishing *S. psilocarpus* from allied species.

SPECIMENS EXAMINED

Victoria — Wannon Region: Lower Glenelg River area, Red Gum Swamp S of Greenwald, Jan. 1969, A.C. Beaglehole 37882 (MEL 540875, AD 97907230, CANB 297861, NSW *s.n.*); 100 m E of Dartmoor-Casterton Road, opposite Wild Horse Flat, 2.6 km S of Kill-Mac Road, 15 Feb. 1992, D. Frood 2/92 (MEL 2012640); 16.5 km SSW of Casterton, 28 Mar. 1984, A.C. Beaglehole 76570 (MEL 1580010). **Midlands Region:** Lal Lal, between roadside and railway line, just N of township, 7 Feb. 1992, R. Thomas *s.n.* (MEL 2012638, EMC *s.n.*). **Victorian Volcanic Plain Region:** Rail Reserve, Herne's Swamp, Wallan East, to near S of 45 km rail post, 14 Nov. 1989, D. Frood 75/89 (MEL 2012641). **Otway Plain Region:** *c.* 18 km SW of Colac P.O., E of junction of East West Road and Rankin Lane, 1 Nov. 1974, A.C. Beaglehole 49539 (MEL 539523).

South Australia — South-eastern Region: Honans Scrub, 19 Nov. 1989, R. Bates 21583 (AD 98948219); Honans Scrub, 26 Apr. 1987, R. Bates 9866 (AD *s.n.*); Piccaninnie Ponds, Nov. 1970, K. Alcock 2 (AD 97545345).

DISTRIBUTION AND CONSERVATION STATUS

The species is known from about ten sites scattered between Wallan (*c.* 45 km N of Melbourne) and Honans Scrub in south-eastern South Australia (Fig. 2).



Fig. 2. Map showing distribution of *Senecio psilocarpus*.

Doubtless it was more common in western Victoria prior to widespread vegetation clearance.

Although detailed information is not available for all extant populations, indications are that populations occur over a very limited area, often occupying less than 1 acre (c. 0.4 ha). Aerial stems are often locally common to abundant, but assessment of population size on the basis of the number of aerial stems may be misleading as individual plants tend to be clonal, each producing several to many aerial stems from 'rhizomes' spreading laterally for as much as c. 0.5m from the origin.

Senecio psilocarpus is poorly reserved in Victoria as only one population occurs within a gazetted biological reserve. This population, at Red Gum (Cordover) Swamp in the Lower Glenelg National Park, is important in terms of the conservation of the species because it appears to be more variable than other populations. However, it does not encompass the entire range of morphological variation observed in the species. Other Victorian populations occur within rail reserves, bushland reserves, state forest or uncommitted public land where conservation of biological resources is not the primary objective. We see land status reclassification (to biological reserve status) and population monitoring, for as many as possible of the remaining sites, as important steps in ensuring the survival of the species.

Little is known about the conservation status of the South Australian populations, but it appears that the Piccaninnie Ponds population occurs within the Piccaninnie Ponds Conservation Park.

The Risk Code (*sensu* Briggs & Leigh, 1989) for *Senecio psilocarpus* is assessed as 3VCi.

HABITAT

Senecio psilocarpus is restricted to high quality herb-rich wetlands on plains. During winter such sites can be inundated with up to 0.6 m or more of water, but almost dry in summer. A tree canopy is absent from most sites or rarely *Eucalyptus*

camaldulensis is the overstorey species in a woodland formation. The understorey is rich in grasses and sedges and miscellaneous aquatics.

A preliminary floristic classification of wetland vegetation in Victoria suggests that *Senecio psilocarpus* occurs in at least two wetland communities that are floristically, edaphically and geographically distinct (Frood pers. comm.). The basalt plain populations at Lal Lal and Wallan East grow on grey to black silty clay soils and occur in vegetation characterised by the presence of most of the following species: *Danthonia duttoniana*, *Craspedia paludicola*, *Glyceria australis*, *Helichrysum* aff. *rutidolepis*, *Eryngium vesiculosum*, *Agrostis avenacea* var. *perennis* and *Stellaria palustris*. Populations from south-western Victoria (and probably also south-eastern South Australia) grow on peatier soils in vegetation characterised by the presence of most of the following species: *Hydrocotyle muscosa*, *Asperula subsimplex*, *Isolepis fluitans* and *Agrostis avenacea* var. *perennis*. Species commonly occurring in both communities include *Poa labillardieri*, *Baumea arthropphylla* and *Eleocharis acuta*.

DISCUSSION

Senecio psilocarpus most closely resembles *S. squarrosus* and until recently has been included within that species. Our conviction that it constitutes a new taxon distinct from *S. squarrosus* is a view shared by several active Victorian ecologists who independently arrived at the same conclusion. The entity recognised as *Senecio* sp. aff. *squarrosus* (South West Swamps) in Ross (1993) is *S. psilocarpus*.

Senecio psilocarpus and *S. squarrosus* are readily separated on fruit colour and fruit indumentum, the former having shiny reddish-brown to brown entirely glabrous cypselas, the latter having very dark brown to black puberulent cypselas. *S. psilocarpus* appears to form colonial masses with the ultimate erect flowering stems arising from underground 'rhizomes' and from decumbent stem bases that root at the nodes. This growth habit has not been observed in *S. squarrosus*. There are also several partially overlapping characters that are often useful for distinguishing the two species. *Senecio psilocarpus* has 12–16 phyllaries (rarely to 21 in the Red Gum Swamp population) that are 4.5–6.5 mm long (rarely to 7.5 mm long in the Red Gum Swamp population), whereas *S. squarrosus* has 16–21 phyllaries (rarely as few as 13–14) that are 7–8.5 (–9.5) mm long (rarely as short as 6.5 mm long). The leaves of *S. psilocarpus* are glabrate or occasionally inconspicuously hispid on the upper surface near the margin (cf. typically shortly hispid above and arachnoid below in *S. squarrosus*, but occasionally glabrate). The backs of the calycular bracteoles, phyllary bases and receptacle are also glabrate in *S. psilocarpus* (cf. arachnoid or occasionally glabrate in *S. squarrosus*). On the basis of few samples, bruised leaves of *S. psilocarpus* have a strong carrot-like smell, whereas those of *S. squarrosus* have a tomato-like smell. Further sampling is required to establish the usefulness of this character. *S. psilocarpus* is exclusively a plant of wetlands, whereas *S. squarrosus* has a broader ecological amplitude, occurring in dry to wet conditions.

As the majority of specimens of *Senecio psilocarpus* have a lower phyllary number than *S. squarrosus*, plants may uneasily key to *S. tenuiflorus* using Lawrence & Belcher (1986), but *S. tenuiflorus*, like *S. squarrosus*, has minutely hairy cypselas and a non-clonal habit, and has leaves with a moderate to dense indumentum on the underside.

ACKNOWLEDGEMENTS

We thank the curators of herbaria cited (AD, CANB, MEL, NSW) for access to their collections and for the use of loans. We are particularly grateful to Doug Frood (Department of Conservation and Natural Resources) for detailed information on the habitat of *Senecio psilocarpus* and for his collections; to Margaret Lawrence for her initial confirmation of the distinctiveness of the new

taxon; to Roger Thomas for collections; to Neville Scarlett and Kath Alcock for information, and to Mali Moir for preparing Fig. 1.

REFERENCES

- Briggs, J.D. & Leigh, J.H. (1989). Rare or Threatened Australian Plants. Special Publication 14, (Australian National Parks and Wildlife Service: Canberra.)
- Lawrence, M.E. & Belcher, R.O. (1986). *Senecio*. In Jessop, J.P. & Toelken, H.R. (Eds.), Flora of South Australia. ed. 4, 3. (Government Printer: Adelaide.) pp. 1591–1605.
- Ross, J.H. (Ed.) (1993). A Census of the Vascular Plants of Victoria. ed. 4. (Royal Botanic Gardens: Melbourne.)

Manuscript submitted 30 June 1993.